

WHAT IS CLAIMED IS:

1. A fingerprint identification system comprising a registration apparatus and an identification apparatus,

said registration apparatus comprising:

a first fingerprint sensor for reading a fingerprint in a first region of a human finger to output an image signal representing an image of the fingerprint;

first image data generating means for generating image data of the fingerprint based on the image signal output from said first fingerprint sensor; and

data output means for outputting the image data generated by said first image data generating means;

said identification apparatus comprising:

data input means for receiving the image data output from said data output means;

storage means for storing the image data received by said data input means;

a second fingerprint sensor for reading a fingerprint in a second region of a human finger, which is smaller than said first region, to output an image signal representing an image of the fingerprint;

second image data generating means for generating image data of the fingerprint based on the image signal output from said second fingerprint sensor; and

image identification means for comparing the image data generated by said second image data generating means against the image data stored in said storage means to determine whether the fingerprints represented by the respective image data coincide with each other.

2. A fingerprint identification apparatus comprising:
storage means for storing image data representing an image of a fingerprint in a first region of a human finger;
a fingerprint sensor for reading a fingerprint in a second region of a human finger, which is smaller than said first region, to output an image signal representing an image of the fingerprint;

image data generating means for generating image data of the fingerprint based on the image signal output from said fingerprint sensor; and

image identification means for comparing the image data generated by said image data generating means against the image data stored in said storage means to determine whether the fingerprints represented by the respective image data coincide with each other.

3. A fingerprint identification apparatus according to Claim 2, wherein said fingerprint sensor generates the image signal by detecting variation in capacitance due to ridges

and valleys of the fingerprint when the finger is placed on a fingerprint reading unit.

4. A fingerprint identification apparatus according to Claim 2, wherein said image data generating means generates image data representing a binary image of the fingerprint based on the image signal output from said fingerprint sensor.

5. A fingerprint identification apparatus according to Claim 2, wherein said image identification means compares the image data generated by said image data generating means against the image data stored in said storage means by pattern matching to determine whether the fingerprints represented by the respective image data coincide with each other.

6. A fingerprint identification apparatus according to Claim 2, wherein said fingerprint sensor reads the fingerprint a plurality of times with the finger placed at different positions with respect to said fingerprint sensor so that said image data generating means generates a plurality of image data of the fingerprint, and said image identification means compares each of the plurality of image data generated by said image data generating means against

the image data stored in said storage means to calculate scores each indicating the degree of coincidence between the respective image data, thereby determining whether the fingerprints represented by the respective image data coincide with each other based on the scores.

7. A fingerprint identification apparatus according to Claim 6, wherein said image identification means determines coincidence based on a comparison of the total of the scores with a predetermined threshold value.

8. A fingerprint identification apparatus according to Claim 6, wherein said image identification means determines coincidence based on individual comparisons of each of the scores with a predetermined threshold value.

9. A fingerprint identification apparatus according to Claim 2, wherein said fingerprint identification apparatus is incorporated in a portable item.

10. A fingerprint identification apparatus according to Claim 9, wherein said portable item comprises a wristwatch or a smart card (IC card).

11. A fingerprint identification method comprising a

registration apparatus controlling step and an
identification apparatus controlling step,

said registration apparatus controlling step
comprising:

a first image signal output step for reading a
fingerprint in a first region of a human finger by a first
fingerprint sensor to output an image signal representing an
image of the fingerprint;

a first image data generating step for generating image
data of the fingerprint based on the image signal output in
said first image signal output step; and

a data output step for outputting the image data
generated in said first image data generating step;

said identification apparatus controlling step
comprising:

a data input step for receiving the image data output
in said data output step;

a storing step for storing the image data received in
said data input step in storage means;

a second image signal output step for reading a
fingerprint in a second region of a human finger, which is
smaller than said first region, by a second fingerprint
sensor to output an image signal representing an image of
the fingerprint;

a second image data generating step for generating

image data of the fingerprint based on the image signal output in said second image signal output step; and

an image identification step for comparing the image data generated in said second image data generating step against the image data stored in said storage means to determine whether the fingerprints represented by the respective image data coincide with each other.

12. A fingerprint identification method comprising:

a storing step for storing in storage means image data representing an image of a fingerprint in a first region of a human finger;

an image signal output step for reading a fingerprint in a second region of a human finger, which is smaller than said first region, by a fingerprint sensor to output an image signal representing an image of the fingerprint;

an image data generating step for generating image data of the fingerprint based on the image signal output in said image signal output step; and

an image identification step for comparing the image data generated in said image data generating step against the image data stored in said storage means to determine whether the fingerprints represented by the respective image data coincide with each other.

13. A fingerprint identification method according to Claim 12, wherein the fingerprint is read in said image signal output step a plurality of times with the finger placed at different positions with respect to said fingerprint sensor so that a plurality of image data of the fingerprint is generated in said image data generating step, and in said image identification step, each of the plurality of image data generated in said image data generating step is compared against the image data stored in said storage means to calculate scores each indicating the degree of coincidence between the respective image data, thereby determining whether the fingerprints represented by the respective image data coincide with each other based on the scores.

14. A biometric identification apparatus comprising:
storage means for storing image data representing an image of biometric information in a first region of a human body;

a biometric sensor for reading biometric information in a second region of a human body, which is smaller than said first region, to output an image signal representing an image of the biometric information;

image data generating means for generating image data of the biometric information based on the image signal

output from said biometric sensor; and

image identification means for comparing the image data generated by said image data generating means against the image data stored in said storage means to determine whether the biometric information represented by the respective image data coincide with each other.

15. A biometric identification apparatus according to Claim 14, wherein said image data generating means generates image data representing a binary image of the biometric information based on the image signal output from said biometric sensor.

16. A biometric identification apparatus according to Claim 14, wherein said image identification means compares the image data generated by said image data generating means against the image data stored in said storage means by pattern matching to determine whether the biometric information represented by the respective image data coincide with each other.

17. A biometric identification apparatus according to Claim 14, wherein said biometric sensor reads the biometric information a plurality of times with the relevant part of the human body placed at different positions with respect to

said biometric sensor so that said image data generating means generates a plurality of image data of the biometric information, and said image identification means compares each of the plurality of image data generated by said image data generating means against the image data stored in said storage means to calculate scores each indicating the degree of coincidence between the respective image data, thereby determining whether the biometric information represented by the respective image data coincide with each other based on the scores.

18. A biometric identification apparatus according to Claim 17, wherein said image identification means determines coincidence based on a comparison of the total of the scores with a predetermined threshold value.

19. A biometric identification apparatus according to Claim 17, wherein said image identification means determines coincidence based on individual comparisons of each of the scores with a predetermined threshold value.

20. A biometric identification apparatus according to Claim 14, wherein said biometric identification apparatus is incorporated in a portable item.

